

WE CLAIM:

1. A method for producing Factor VII or a Factor VII-related polypeptide comprising (a) transfecting a mammalian cell with a nucleic acid molecule comprising (i) a sequence encoding Factor VII or a Factor VII-related polypeptide and (ii) at least one S/MAR element; (b) culturing the transfected cell under conditions suitable for expression of the Factor VII or a Factor VII-related polypeptide; and (c) isolating the expressed polypeptide.
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2. The method of claim 1, wherein the nucleic acid molecule comprises two S/MAR elements.
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3. The method of claim 1, wherein the at least one S/MAR element comprises (i) SEQ ID NO:1 or SEQ ID NO:2, (ii) a functional fragment of SEQ ID NO:1 or SEQ ID NO:2, or (iii) a sequence that is at least about 70% homologous to SEQ ID NO:1 or SEQ ID NO:2.
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4. The method of claim 2, wherein the two S/MAR elements are selected from (i) SEQ ID NO:1 or SEQ ID NO:2, (ii) functional fragments of SEQ ID NO:1 or SEQ ID NO:2, or (iii) sequences that are at least about 70% homologous to SEQ ID NO:1 or SEQ ID NO:2..
- 20 5. The method of claim 2, wherein the two S/MAR elements are identical.
6. The method of claim 5, wherein the identical S/MAR elements comprise SEQ ID NO:1.
- 25 7. The method of claim 5, wherein the identical S/MAR elements comprise SEQ ID NO:2.
8. The method of claim 5, wherein the identical S/MAR elements comprise SEQ ID NO:3.
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9. The method of claim 5, wherein the identical S/MAR elements comprise SEQ ID NO:4.
10. The method of claim 5, wherein the identical S/MAR elements comprise
35 SEQ ID NO:5.

11. The method of claim 2, wherein the two S/MAR elements comprise SEQ ID NO:1 and SEQ ID NO:2, respectively.

12. The method of claim 2, wherein the two S/MAR elements comprise SEQ ID NO:2 and SEQ ID NO:3, respectively.

13. The method of claim 2, wherein the two S/MAR elements comprise SEQ ID NO:2 and SEQ ID NO:4, respectively.

14. The method of claim 2, wherein the two S/MAR elements comprise SEQ ID NO:2 and SEQ ID NO:5, respectively.

15. The method of claim 1, wherein the at least one S/MAR element is located less than about 10 kb from the Factor VII or Factor VII-related polypeptide-encoding sequence.

16. A method for producing a polypeptide or protein comprising (a) transfecting a mammalian cell with a nucleic acid molecule comprising a (I) sequence encoding the polypeptide or protein and (II) at least one S/MAR element comprising (i) SEQ ID NO:1 or SEQ ID NO:2, (ii) a functional fragment of SEQ ID NO:1 or SEQ ID NO:2, or (iii) a sequence that is at least about 70% homologous to SEQ ID NO:1 or SEQ ID NO:2; (b) culturing the transfected cell under conditions suitable for expression of the polypeptide or protein; and (c) isolating the expressed polypeptide or protein.

17. The method of claim 16, wherein the nucleic acid molecule comprises two S/MAR elements.

18. The method of claim 17, wherein the two S/MAR elements are identical.

19. The method of claim 18, wherein the identical S/MAR elements comprise SEQ ID NO:1.

20. The method of claim 18, wherein the identical S/MAR elements comprise SEQ ID NO:2.

21. The method of claim 18, wherein the identical S/MAR elements comprise SEQ ID NO:3.
22. The method of claim 18, wherein the identical S/MAR elements comprise
5 SEQ ID NO:4.
23. The method of claim 18, wherein the identical S/MAR elements comprise SEQ ID NO:5.
- 10 24. The method of claim 17, wherein the two S/MAR elements comprise SEQ ID NO:1 and SEQ ID NO:2, respectively.
25. The method of claim 17, wherein the two S/MAR elements comprise SEQ ID NO:2 and SEQ ID NO:3, respectively.
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26. The method of claim 17, wherein the two S/MAR elements comprise SEQ ID NO:2 and SEQ ID NO:4, respectively.
27. The method of claim 17, wherein the two S/MAR elements comprise SEQ
20 ID NO:2 and SEQ ID NO:5, respectively.
28. An isolated DNA molecule comprising one or more S/MAR elements that comprise a sequence selected from the group consisting of SEQ ID NOs:1-5.
- 25 29. The isolated DNA molecule of claim 28, wherein the DNA molecule comprises a sequence encoding a human protein or polypeptide or a functional analogue of a human protein or polypeptide.
- 30 30. The isolated DNA molecule of claim 29, wherein the protein or polypeptide-encoding sequence is located less than about 10 kb from the one or more S/MAR elements.
31. The isolated DNA molecule of claim 30, wherein the isolated DNA molecule comprises SEQ ID NO:1.
- 35 32. The isolated DNA molecule of claim 30, wherein the isolated DNA molecule comprises SEQ ID NO:2.

33. The isolated DNA molecule of claim 30, wherein the isolated DNA molecule comprises SEQ ID NO:3.

5 34. The isolated DNA molecule of claim 30, wherein the isolated DNA molecule comprises SEQ ID NO:4.

35. The isolated DNA molecule of claim 30, wherein the isolated DNA molecule comprises SEQ ID NO:5.

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36. A vector construct comprising a nucleic acid molecule comprising (a) a sequence encoding Factor VII or a Factor VII-related polypeptide operably linked to one or more expression control elements and (b) one or more S/MAR elements.

15 37. The vector construct of claim 36, wherein the one or more S/MAR elements comprise a sequence selected from SEQ ID NOs:1-5.

38. A mammalian cell comprising the vector of claim 37.

20 39. A vector construct comprising a nucleic acid molecule that comprises (a) a sequence encoding a polypeptide or protein operably linked to one or more expression control elements and (b) at least one S/MAR element comprising a sequence selected from SEQ ID NOs:1-5.

25 40. A mammalian cell comprising the vector of claim 39.

41. An isolated DNA molecule consisting essentially of one or more sequences selected from SEQ ID NOs:1-5.